AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A wireless apparatus for wirelessly communicating with an opposite wireless apparatus, comprising:

a receiver for receiving propagation environment information, block error rate detection information and reception quality information from the opposite wireless apparatus;

a table selector for selecting one of a plurality of tables in accordance with the received propagation environment information, each of the tables having target error rates corresponding to transmission modes;

a threshold controller for controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

a mode selector for selecting, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, wherein the propagation environment information comprises a maximum Doppler frequency, and wherein:

each of the tables corresponds to one of maximum Doppler frequencies $f_0, f_1, \ldots, f_{R-1}$, where $f_0 < f_1 < \ldots < f_{R-1}$;

if $x_{j-1} < f_d \leq x_j$, then the table selector selects the table corresponding to f_j;

if $f_d \leq x_0$, then the table selector selects the table corresponding to f_0; and

if $f_d > x_{R-2}$, then the table selector selects the table corresponding to f_{R-1},

where:

f_d is the maximum Doppler frequency in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$f_j \leq x_j \leq f_{j+1}$.

2. (Original) The wireless apparatus claimed in claim 1, wherein the threshold controller increases the threshold values by Δ up or decreases the threshold value by Δ down, where the target error rate is 1/N, Δ up = (N-1) × Δ down.

3. (Original) The wireless apparatus claimed in claim 1, wherein the propagation environment information comprises the number of path(s) in multipath environment.

4. (Original) The wireless apparatus claimed in claim 3, wherein each of the tables corresponds to one of the numbers of the paths $P_1, P_2, ..., P_R$, where $R, P_1, P_2, ..., P_R$ are natural numbers and $P_1 < P_2 < ... < P_R$.

5. - 6. (Canceled)

7. (Currently Amended) ~~The~~ A wireless apparatus ~~claimed in claim 1~~ for wirelessly communicating with an opposite wireless apparatus, comprising:

a receiver for receiving propagation environment information, block error rate detection information and reception quality information from the opposite wireless apparatus;

a table selector for selecting one of a plurality of tables in accordance with the received propagation environment information, each of the tables having target error rates corresponding to transmission modes;

a threshold controller for controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

a mode selector for selecting, with reference to comparison of the received reception

quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, **wherein the propagation environment information comprises delay dispersion**, and wherein:

each of the tables corresponds to one of the delay dispersions $\sigma_0, \sigma_1, \ldots, \sigma_{R-1}$, where $\sigma_0 \leq \sigma_1 \leq \ldots \leq \sigma_{R-1}$;

if $x_{j-1} < \sigma \leq x_j$, then the table selector selects the table corresponding to σ_j;

if $\sigma \leq x_0$, then the table selector selects the table corresponding to σ_0; and

if $\sigma > x_{R-2}$, then the table selector selects the table corresponding to σ_{R-1},

where:

σ is the delay dispersion in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$\sigma_i \leq x_i \leq \sigma_{i+1}$.

8. (Canceled)

9. (Original) The wireless apparatus claimed in claim 1, wherein each of the tables corresponds to a combination of the number of path in multipath environment and a maximum Doppler frequency.

10. (Original) The wireless apparatus claimed in claim 1, wherein each of the tables corresponds to a combination of the number of path in multipath environment and a delay dispersion.

11. (Original) The wireless apparatus claimed in claim 1, wherein each of the tables corresponds to a combination of a maximum Doppler frequency and a delay dispersion.

12. (Original) The wireless apparatus claimed in claim 1, wherein each of the tables corresponds to a combination of the number of path in multipath environment, a maximum Doppler frequency and a delay dispersion.

13. (Original) The wireless apparatus claimed in claim 1, wherein the reception quality information comprises at least one of:

a rate between a signal power and a noise power;

a rate between a signal power and an interference power; and

a rate between a signal power and a noise interference power.

14. (Original) The wireless apparatus claimed in claim 1, parameters of the transmission mode comprises at least one of:

type of modulation; and

an encoding rate of an error correction.

15. (Currently Amended) A wireless communication system comprising a first wireless apparatus and a second wireless apparatus,

wherein the first wireless apparatus comprises:

a measurer for measuring reception quality of communication with the second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the measurement as reception quality information;

an estimator for estimating propagation environment between the first and second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the estimation as propagation environment information;

an detector for detecting block errors from signals received from the second wireless apparatus to output a result of the detection as an error detection result; and

a transmitter for transmitting the reception quality information, the propagation environment information and the error detection result to the second wireless apparatus together with data signals,

wherein the second wireless apparatus comprises:

a table selector for selecting one of plurality of tables in accordance with the received propagation environment information, in each one of the tables target error rates being correspondent to transmission modes;

a threshold controller for controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

a mode selector for selecting, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, wherein in the propagation environment information comprises a maximum Doppler frequency, and wherein:

each of the tables corresponds to one of maximum Doppler frequencies $f_0, f_1, \ldots, f_{R-1}$, where $f_0 < f_1 < \ldots < f_{R-1}$;

if $x_{j-1} < f_d \leq x_j$, then the table selector selects the table corresponding to f_j;

if $f_d \leq x_0$, then the table selector selects the table corresponding to f_0; and

if $f_d > x_{R-2}$, then the table selector selects the table corresponding to f_{R-1},

where:

f_d is the maximum Doppler frequency in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$f_i < x_i < f_{i+1}$.

16. (Original) The wireless communication system claimed in claim 15, wherein the threshold controller increases the threshold values by Δ up or decreases the threshold value by Δ down, where the target error rate is 1/N, Δ up = (N-1) $\times$ Δ down.

17. (Original) The wireless communication system claimed in claim 15, wherein the propagation environment information comprises the number of path(s) in multipath environment.

18. (Original) The wireless communication system claimed in claim 17, wherein each of the tables corresponds to one of the numbers of the paths $P_1, P_2, \ldots, P_R$, where R, $P_1, P_2, \ldots, P_R$ are natural numbers and $P_1 < P_2 < \ldots < P_R$.

19. – 21. (Canceled)

22. (Currently Amended) ~~The~~ A wireless communication system ~~claimed in claim 21~~ comprising a first wireless apparatus and a second wireless apparatus,

wherein the first wireless apparatus comprises:

a measurer for measuring reception quality of communication with the second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the measurement as reception quality information;

an estimator for estimating propagation environment between the first and second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the estimation as propagation environment information;

an detector for detecting block errors from signals received from the second wireless apparatus to output a result of the detection as an error detection result; and

a transmitter for transmitting the reception quality information, the propagation environment information and the error detection result to the second wireless apparatus together with data signals,

wherein the second wireless apparatus comprises:

a table selector for selecting one of plurality of tables in accordance with the received propagation environment information, in each one of the tables target error rates being correspondent to transmission modes;

a threshold controller for controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

a mode selector for selecting, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, wherein the propagation environment information comprises delay dispersion, and

wherein:

each of the tables corresponds to one of the delay dispersions σ_0, σ_1, ..., σ_{R-1}, where $\sigma_0 < \sigma_1 < ... < \sigma_{R-1}$;

if $x_{j-1} < \sigma \leq x_j$, then the table selector selects the table corresponding to σ_j;

if $\sigma \leq x_0$, then the table selector selects the table corresponding to σ_0; and

if $\sigma > x_{R-2}$, then the table selector selects the table corresponding to σ_{R-1},

where:

σ is the delay dispersion in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R\text{-}2$; and

$\sigma_i < x_i < \sigma_{i+1}$.

23. (Original) The wireless communication system claimed in claim 15, wherein each of the tables corresponds to a combination of the number of path in multipath environment and a maximum Doppler frequency.

24. (Original) The wireless communication system claimed in claim 15, wherein each of the tables corresponds to a combination of the number of path in multipath environment and a delay dispersion.

25. (Original) The wireless communication system claimed in claim 15, wherein each of the tables corresponds to a combination of a maximum Doppler frequency and a delay dispersion.

26. (Original) The wireless communication system claimed in claim 15, wherein each of the tables corresponds to a combination of the number of path in multipath environment, a maximum Doppler frequency and a delay dispersion.

27. (Original) The wireless communication system claimed in claim 15, wherein the reception quality information comprises at least one of:

a rate between a signal power and a noise power;

a rate between a signal power and an interference power; and

a rate between a signal power and a noise interference power.

28. (Original) The wireless communication system claimed in claim 15, parameters of the transmission mode comprises at least one of:

type of modulation; and

an encoding rate of an error correction.

29. (Currently Amended) A method of selecting a transmission mode of wireless

communication with an opposite wireless apparatus, comprising the steps of:

receiving propagation environment information, block error rate detection information and reception quality information from the opposite wireless apparatus;

selecting one of a plurality of tables in accordance with the received propagation environment information, [[in]] each [[one]] of the tables having target error rates ~~being correspondent~~corresponding to transmission modes;

controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

selecting, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, wherein the propagation environment information comprises a maximum Doppler frequency, and wherein:

each of the tables corresponds to one of maximum Doppler frequencies $f_0, f_1, \ldots, f_{R-1}$, where $f_0 < f_1 < \ldots < f_{R-1}$;

if $x_{j-1} < f_d \leq x_j$, then the table selector selects the table corresponding to f_j;

if $f_d \leq x_0$, then the table selector selects the table corresponding to f_0; and

if $f_d > x_{R-2}$, then the table selector selects the table corresponding to f_{R-1},

where:

f_d is the maximum Doppler frequency in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$f_i < x_i < f_{i+1}$.

30. (Currently Amended) A method of selecting a transmission mode of wireless communication between a first wireless apparatus and a second wireless apparatus, comprising the steps of:

measuring, at the first wireless apparatus, reception quality of communication with the second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the measurement as reception quality information;

estimating, at the first wireless apparatus, propagation environment between the first and second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the estimation as propagation environment information;

detecting, at the first wireless apparatus, block errors from signals received from the second wireless apparatus to output a result of the detection as an error detection result;

transmitting, from the first wireless apparatus to the second wireless apparatus, the reception quality information, the propagation environment information and the error detection result to the second wireless apparatus together with data signals;

selecting, at the second wireless apparatus, one of plurality of tables in accordance with the received propagation environment information, in each one of the tables target error rates being correspondent to transmission modes;

controlling, at the second wireless apparatus, threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

selecting, at the second wireless apparatus, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the first wireless apparatus with the selected

transmission mode, wherein the propagation environment information comprises a maximum Doppler frequency, and wherein:

each of the tables corresponds to one of maximum Doppler frequencies $f_0, f_1, \ldots, f_{R-1}$, where $f_0 < f_1 < \ldots < f_{R-1}$;

if $x_{j-1} < f_d \leq x_j$, then the table selector selects the table corresponding to f_j;

if $f_d \leq x_0$, then the table selector selects the table corresponding to f_0; and

if $f_d > x_{R-2}$, then the table selector selects the table corresponding to f_{R-1},

where:

f_d is the maximum Doppler frequency in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$f_i < x_i < f_{i+1}$.

31. (New) A method of selecting a transmission mode of wireless communication with an opposite wireless apparatus, comprising the steps of:

receiving propagation environment information, block error rate detection information and reception quality information from the opposite wireless apparatus;

selecting one of a plurality of tables in accordance with the received propagation environment information, each of the tables having target error rates corresponding to transmission modes;

controlling threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

selecting, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the opposite wireless apparatus with the selected transmission mode, wherein the propagation environment information comprises delay dispersion, and wherein:

each of the tables corresponds to one of the delay dispersions $\sigma_0, \sigma_1, ..., \sigma_{R-1}$, where $\sigma_0 < \sigma_1 < ... < \sigma_{R-1}$;

if $x_{j-1} < \sigma \leq x_j$, then the table selector selects the table corresponding to σ_j;

if $\sigma \leq x_0$, then the table selector selects the table corresponding to σ_0; and

if $\sigma > x_{R-2}$, then the table selector selects the table corresponding to σ_{R-1},

where:

σ is the delay dispersion in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$\sigma_i < x_i < \sigma_{i+1}$.

32. (New) A method of selecting a transmission mode of wireless communication between a first wireless apparatus and a second wireless apparatus, comprising the steps of:

measuring, at the first wireless apparatus, reception quality of communication with the second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the measurement as reception quality information;

estimating, at the first wireless apparatus, propagation environment between the first and second wireless apparatus on the basis of signals received from the second wireless apparatus to output a result of the estimation as propagation environment information;

detecting, at the first wireless apparatus, block errors from signals received from the second wireless apparatus to output a result of the detection as an error detection result;

transmitting, from the first wireless apparatus to the second wireless apparatus, the reception quality information, the propagation environment information and the error detection result to the second wireless apparatus together with data signals;

selecting, at the second wireless apparatus, one of plurality of tables in accordance with the received propagation environment information, in each one of the tables target error rates being correspondent to transmission modes;

controlling, at the second wireless apparatus, threshold values of reception quality in accordance with the received block error rate detection information and the selected table;

selecting, at the second wireless apparatus, with reference to comparison of the received reception quality information with the controlled threshold values, one of the transmission modes in order to transmit data to the first wireless apparatus with the selected transmission mode, wherein the propagation environment information comprises delay dispersion, and wherein:

each of the tables corresponds to one of the delay dispersions $\sigma_0, \sigma_1, ..., \sigma_{R-1}$, where $\sigma_0 < \sigma_1 < ... < \sigma_{R-1}$;

if $x_{j-1} < \sigma \leq x_j$, then the table selector selects the table corresponding to σ_j;

if $\sigma \leq x_0$, then the table selector selects the table corresponding to σ_0; and

if $\sigma > x_{R-2}$, then the table selector selects the table corresponding to σ_{R-1},

where:

σ is the delay dispersion in the received propagation environment information;

i, j are integers;

$0 \leq i \leq R-2$;

$1 \leq j \leq R-2$; and

$\sigma_i < x_i < \sigma_{i+1}$.